

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in this application.

1. (Currently Amended) A method to produce uranium dioxide fuel, comprising:
providing a porous uranium dioxide arrangement;
infiltrating the porous uranium dioxide arrangement with a precursor liquid; ~~and~~
curing the thermally treating the porous uranium dioxide arrangement with the
infiltrated precursor liquid; and
thermally firing the porous uranium dioxide arrangement, such that the precursor
liquid is converted to a second phase.
2. (Original) The method according to claim 1, wherein the precursor liquid is
allylhydridopolycarbosilane.
3. (Cancelled).
4. (Original) The method according to claim 1, wherein the second phase is a solid.
5. (Cancelled).
6. (Currently Amended) The method according to claim ~~5~~ 1, wherein the curing of the
arrangement is between 180 and 400 degrees centigrade.
7. (Currently Amended) The method according to claim ~~5~~ 1, wherein the firing of the
arrangement is between 850 degrees centigrade and 1700 degrees centigrade.
8. (Currently Amended) The method according to claim ~~5~~ 7, wherein the firing of the
arrangement is between 1500 degrees centigrade and 1700 degrees centigrade.
9. (Original) The method according to claim 1, wherein the arrangement is provided in
pellet form.
10. (Currently Amended) The method according to claim 1, wherein the thermal ~~treating~~
firing of the porous uranium dioxide arrangement results in solid silicon carbide.

11. (Currently Amended) The method according to claim 1, wherein the method is repeated until a thermal conductivity of the fuel arrangement is increased at least 5% compared to that of a fuel arrangement formed from pure uranium dioxide.
12. (Original) The method according to claim 1, wherein the infiltrating of the porous uranium dioxide arrangement with the precursor liquid results in incorporation of the precursor liquid into a center of the uranium dioxide arrangement
13. (Withdrawn) A nuclear fuel, comprising:
an arrangement having a matrix of uranium dioxide; and
silicon carbide interspersed in the matrix of uranium dioxide.
14. (Withdrawn) The nuclear fuel according the claim 13, wherein the arrangement is pellet shaped.
15. (Withdrawn) The nuclear fuel according to claim 13, wherein a total volume of the arrangement is comprised of up to 10% silicon carbide on a volumetric basis.
16. (Withdrawn) The nuclear fuel according to claim 15, wherein the silicon carbide is equally interspersed with the uranium dioxide.